REMARKS

Claim Amendment

Previously withdrawn Claims 62, 63, 65, 66, 70-73, 79-82, 85 and 89 are now cancelled.

Claim 1 is amended to recite that the claimed polymer composition includes aqueous ammonia. Support for this amendment is found in the Exemplification section, *e.g.* in Example 1, page 15, lines 24 of the specification as filed (published as WO 2005/087191).

Claim Rejections

Claims 1, 4, 7, 8, 10-12, 14-15, 18, 19, 21-24, 28, 31, 43-45, 53-56 and 58 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 5,998,500 ("Cahill") in view of U.S. 6,482,394 ("Schehlmann").

The Examiner recapitulated the characterization of Cahill and Schehlmann previously presented in the Office Action mailed on 5 December 2008.

The Examiner stated that Cahill discloses a bimodal polymer composition comprising at least two polymers: polymer I with cationic character and polymer II with anionic character, forming an interpenetrating network (IPN), but fails to teach that polymers having Applicants' molecular weight. The Examiner further stated that, although Schehlmann is silent regarding the presence of an interpolymer penetrating network, Schehlmann's polymers are made in the same manner and with the same monomer units as claimed by Applicants. Therefore, according to the Examiner, the compositions of Schehlmann inherently include Applicants' claimed interpenetrating polymer network (IPN), and it would have been obvious for one of ordinary skill in the art to modify Cahill's composition as taught by Schehlmann to thereby obtain Applicants' claimed composition.

In response to Applicants' arguments presented in the Amendment filed on 28 April 2009, the Examiner stated that it is reasonable to assume that the Schehlmann composition is an IPN. The Examiner further stated that if, arguendo, it can be shown that the Schehlmann composition is *not* an IPN, then Applicants' claims would be rejected over the teachings of Cahill, modified in view of Schehlmann to include the high molecular weight polymers.

It is Applicants' understanding that the Exmainer is advancing an *inherency* rejection over Schehlmann and, in the alternative, an obviousness rejection over Cahill in view of Schehlmann. If Applicants are incorrect, clarification is requested.

Applicants' Response

Applicants' Claims are not Inherently Anticipated by Schehlmann

It is well established in Patent Law that a novelty rejection based on inherency cannot be maintained if it is merely "possible" that the prior art discloses all of the claim limitations. For example, M.P.E.P. §2121 states with reference to rejections based on inherency:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence `must make clear that ***the missing descriptive matter is necessarily present in the thing described in the reference***, and that it would be so recognized by persons of ordinary skill. ***Inherency, however, may not be established by probabilities or possibilities***. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.). [*Emphasis added.*]

Thus, in order to establish that Schehlmann inherently anticipates Claim 1, the Examiner must show that the material of Schehlmann *necessarily* possesses *all* the properties recited in Applicants' Claim 1, including the presence of an interpenetrating polymer network (IPN).

However, The Examiner has not made this showing. The presence of an interpenetrating polymer network will depend upon the method by which polymerization takes place. However, there is no description of the *method* by which the composition of Schehlmann is made. Therefore, the polymers of Schehlmann do not *necessarily* include interpenetrating polymer networks. In fact, there is *nothing* in the teachings of Schehlmann from which the existence of

IPN *necessarily* follows. As such, the Examiner's assertion that Schehlmann inherently anticipates Claim 1 is incorrect.

Amended Claim 1 is Patentable Over Cahill in View of Schehlmann[1]

Applicants amended base Claim 1 to recite that the claimed polymer composition includes *aqueous ammonia*. The invention defined by Claim 1 further includes a first polymer with anionic character, said first polymer having a molecular weight ranging from about 1,000 Daltons to about 1,000,000 Daltons; and a second polymer with cationic character. The polymers form an interpenetrating polymer network, with the second polymer having a molecular weight ranging from about 1,000 Daltons to about 1,000,000 Daltons.

In order to manufacture the composition defined by Claim 1, one monomer is polymerized in the presence of a polymer of another monomer, thus forming an IPN. It is known in the art of hair fixatives that higher molecular weight polymers confer on the compositions advantageous properties, including mechanical strength and requisite viscosity. However, it is also known in the polymer art that as the molecular weight of the polymer grows, so does the tendency of a mixture of a bimodal polymer composition to coagulate, *i.e.* to precipitate out of the solution. Without being bound by any particular theory, it is believed that this precipitation is due to electrostatic interaction between the side groups on the first and the second polymer chains. As a result, prior to the Applicants' invention, producing a *stable* composition that includes a first polymer with anionic character having a molecular weight ranging from about 1,000 Daltons to about 1,000,000 Daltons, and a second polymer with cationic character having a molecular weight ranging from about 1,000 Daltons to about 1,000,000 Daltons, wherein the polymers form an interpenetrating polymer network, was difficult if not impossible.

Applicants discovered that a stable composition described above can be obtained if the polymerization of the second monomer proceeds in the presence of a so-called "blocking agent". A blocking agent is an additive that partially neutralizes the charged side groups on the first polymer, thus allowing the second polymer to form without precipitating the mixture due to electrostatic interaction between the two polymer chains.

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[1] The following section contains certain factual assertions. Applicants are in possession of the supporting experimental data and will submit such data at the Examiner's request, by a Declaration Under Rule 1.132.

Applicants further discovered that using volatile blocking agents confers additional advantages. Specifically, when a volatile blocking agent is used, the polymer mixture of Claim 1, in addition to being stable, can undergo further, so-called secondary IPN formation, when and if the volatile blocking agent is allowed to evaporate.

With reference to Examples 1, 2 and 5 (Examples 1 and 2 are found on pages 15 and Example 5 is found on page 22 of the instant specification), Applicants direct the Examiner's attention to the presence in the final composition of 28% by weight "aqua ammonia". This component is employed as a volatile blocking agent. Its presence during the manufacturing, packaging, storage and shipment of the polymer composition of Clam 1 confers stability on the composition defined by Claim 1, as amended. Its evaporation upon application of the composition defined in Claim 1, as amended, onto hair results in formation of secondary IPN. The formation of the secondary IPN, in turn, results in an improved hair fixative product. For example, the polymer composition defined by Claim 1, as amended, sets before so-called "hair droop" occurs, resulting in a better hair hold under humid conditions.

Neither Cahill nor Schehlmann teaches the presence of aqueous ammonia in compositions having interpenetrating polymer network and further having the polymer molecular weight distribution as claimed by Applicants. Therefore, Claim 1, as amended, is novel and non-obvious over the cited references under 35 U.S.C. §§102 and 103, respectively. Reconsideration and withdrawal of the rejections are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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Concord, MA 01742-9133
Date: October 19, 2009